analysing mixtures containing members of both the paraffin and the benzene series of hydrocarbons. Within its somewhat limited scope, the volume is a useful laboratory handbook.

(2) The last remark applies also to M. Jacomet's little work on the chemistry of tanning materials and leather. The recognised methods of examining these products are given, including Proctor's well-known tables for the identification of natural tannins, and those of Andreasch for the recognition of the particular tannin which has been employed in producing a given specimen of leather. In addition, sections are devoted to other substances connected with the leather industry, such as glue, gelatine, gum, and other adhesives, varnish, and polish; these sections are by no means the least valuable. The work is packed with the kind of information which the leather chemist wants in his everyday tasks, and it deserves a cordial word of praise.

(3) More than a third of this volume is taken up by copies of the French fiscal regulations relative to soda and salt. Of the remainder, a substantial proportion has reference to the analytical examination of denatured salt—that is, salt which, to exempt it from taxation, has been rendered unfit for table use by an admixture of various substances, ranging from wallflower essence to sulphate of mercury. For a free trade country this has only a remote interest. The rest of the book contains concise directions for the analysis of sodium and potassium hydroxides, and of such of the salts of these elements as have pharmaceutical or industrial importance.

(4) The "alcohols" which form the subject of this volume are the various forms of ethyl alcohol used in manufactures. Spirituous liquors employed as beverages are excluded. In addition to details of the methods for estimating secondary products (fusel oil, aldehydes, esters, acids) required in the ordinary analysis of commercial alcohol, the chemical matter comprises descriptions of the official methods used in France and other countries for the detection and determination of various denaturing substances. These include methyl alcohol, acetone, "benzine," ether, turpentine, mercuric chloride, pyridine, and so forth. A few unofficial processes are also given, but the author disclaims any attempt at bringing together all the known analytical methods which have been devised for examining alcohol. A chapter which will occasionally be useful to the specialist gives a *résumé* of the legislative enactments concerning industrial alcohol in European countries and in the United States. It has not been brought up to date, however, so far as the United Kingdom is concerned; the "ordinary" methylated alcohol described on p. 63 was abolished more than five years ago, and its place taken by "industrial" alcohol, denatured with five (not ten) per cent. of wood naphtha.

The work includes a number of tables for use in alcoholometry. It is a serviceable volume, but is written, of course, especially from the French point of view.

(5) Considering the small size of this volume, and its other contents, the authors have managed to give in it a very full account of the chemistry of cellulose, so far as we at present know it. The constitution of the cellulose molecule is still a matter of debate, though something substantial has been done towards the elucidation of the problem. In the celluloses and their compounds it has been shown that alcoholic, aldehydic, and ketonic properties exist, and theories of constitution based on these and other facts have been proposed. Useful in a provisional and suggestive sense these theories certainly are, but none are regarded as definitely established, and until the question is settled the chemistry of cellulose must remain a more empirical matter than that of benzene and its derivatives, for example.

The present position can be gathered from the volume under notice, and the authors express the hope that their work will facilitate research by guiding the reader through the maze of published investigations. This it is well calculated to do. It does not, however, deal only, or mainly, with the pure chemistry of the subject. It is essentially a practical treatise, and gives working details of the examinations required in the various branches of the industry. The theoretical side is nevertheless kept in view, and copious references are supplied. In the sections devoted to lignocelluloses and paper there are numerous illustrations of fibres and apparatus.

Judging by the five examples now published, this series of handbooks promises to be a useful and trustworthy one.

C. S.

OUR BOOKSHELF.

An Australian Bird Book: a Pocket-book for Field Use. By J. A. Leach. With introduction by Frank Tate. Pp. 200. (Melbourne: Whitcombe and Tombs, Ltd., 1911.) Price 3*s.* 6*d.*

THIS useful book is intended as a pocket-book for field use to enable teachers and observers generally to name the birds they meet with. It deals with 395 species—a considerable proportion of the Australian avifauna, the balance being made up mainly of birds closely related to those of which illustrations are given, or of very rare birds restricted to a small area. The plan of the book is to indicate by numbers the strength and distribution of the various families of birds over the world in general, and especially in Australia, and to give

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a concise description of each species. This includes the local name or names (if any); its distribution in Australia; its status—whether stationary or migratory, comparative abundance, &c.; the kind of country it frequents; a short description of its size and plumage, and a few words as to its song or other notes, and its food. All the species are illustrated, and in the majority of cases are figured in colours as well as in black and white. The illustrations are, with few exceptions, from specimens in the National Museum.

In addition to this useful and necessary, but somewhat dry, portion of the handbook, about a third of the little volume is occupied by a most interesting lecture on the Australian avifauna. Thus the book appeals to a much wider class of naturalists than that for which it has been mainly written. For the ornithologists of other countries will find in it an excellent introduction to, and a valuable account of, the birds of a very interesting part of the world. Mr. Tate in his introduction alludes to the growth of a generation trained to look upon the characteristic beauties of Australia with an appreciation almost unknown to their pioneering fathers and mothers, and he combats the popular belief that their birds are songless. An index to the coloured plates and a general index make reference to any particular bird easy.

Unity in Nature: an Analogy between Music and Life. By C. E. Stromeyer. Pp. x+589. (London and Manchester: Sherratt and Hughes, 1911.) Price 12*s.* 6*d.* net.

THIS is a readable discourse on things in general, from physics and astronomy to ethics and politics. As the title indicates, the author expounds certain musical analogies, such as the relation between intervals in the octave and distances in the solar system; but, after the first few sections, the matter of the book becomes more general. There is a good deal of amusingly-put speculation about the kind of world that a "flatland" of two dimensions would be (as sketched by Mr. Hinton), and this, of course, leads to fourth-dimensional space and what might happen there. Then, after a chapter on sexual ethics in which a more or less Schopenhauerian doctrine is taught—with much apt illustration, historical and geographical—we come to the female suffrage question, on which the author has vigorous opinions. If women get the vote, "there is every probability that female Members of Parliament would soon be elected; these would decide to elect female Prime Ministers, and as Parliament claims to be omnipotent, there is the prospect of having autocratic female rulers" (p. 507). Also on the disproportionate number of lawyers in Parliament Mr. Stromeyer has some cutting and probably justified remarks; and on education he enters a wise protest against too much classicism. The punctuation of the book leaves something to be desired, and on p. 104 "bromide" appears several times when "bromine" is meant; but these are small details. The author shows wide culture and has a pleasant style.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

Prof. Bergson and the Eye of Pecten.

I FIND that Prof. Bergson in his Philosophies has been making use of a comparison between the eye of Pecten, the scallop, and the vertebrate eye. This comparison is used as the basis of some far-reaching conclusions, and therefore it becomes important to direct the attention of readers of NATURE to the fact that the example taken is an extremely bad one. Prof. Bergson states that the eye of Pecten agrees in the most minute details with the vertebrate eye. Now there is no resemblance whatever either in structure or development between the two. The only feature possessed in common by both eyes is an inverted retina, and this is by no means unique in the animal kingdom.

W. J. DAKIN.

University of Liverpool, March 19.

Mersenne's Numbers.

AT various times NATURE has inserted notices of the successive discoveries in relation to Mersenne's Numbers. In the issue of August 12, 1909, Colonel Cunningham's discovery that 228479 was a factor of 2^p-1 when $p=71$ was announced: the other factor was 103343556363337793, but whether this was a prime or not was left undetermined. The same result was discovered last January by Mr. Ramesam, of Mylapore, Madras, and he subsequently resolved the larger factor into the product of 48544121 and 212885833. I think these results may be of interest to some of your readers.

W. W. ROUSE BALL.

Trinity College, Cambridge, March 23.

The Electrolytic Transportation of the Active Deposit of Actinium through Pure Water.

IN the course of some detailed investigations on the conditions of the electrolysis of some radio-active products, I have encountered in the case of actinium the following phenomenon. The products of the active deposit of actinium, though apparently not soluble in water under ordinary conditions, under the action of electric force could be driven from the anode in the state of ions into the water, and eventually transported to the kathode. The experiments were as follows.

The active deposit of actinium was collected on the surface of a platinum plate exposed during some hours as a negative electrode in the emanation of actinium. Immediately after the removal of the plate from the emanation, its activity was measured by means of an electrometer, and the beginning of the curve of its decay was determined. The plate was then immersed in pure, several times distilled water, and formed the anode during the electrolysis of the water. The kathode was also a platinum plate. The activity of the anode was again measured after the electrolysis. It could be seen that the plate was in certain conditions deprived by the electrolysis of a great part of its activity, especially in the case when a very great electromotive force (220 or 440 volts) was applied. If the current passed through the water during a longer time (2 or 3 min.), and the distance between the electrodes was not too great (1 or 2 cm.), a great part and often the total activity lost on the anode could be detected on the kathode. The activity of the kathode proceeded not only from actinium C and probably actinium D, but also the product

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